Mr. Steven Anthony Reid
California Resources Corporation
10800 Stockdale Highway
Bakersfield, CA 93311
Tony.Reid@crc.com

Dear Mr. Reid:

FOLLOW-UP COMMENTS ON CALIFORNIA RESOURCES CORPORATION ELK HILLS, TULARE AQUIFER EXEMPTION DOCUMENT, ELKS HILLS FIELD

The Division of Oil, Gas & Geothermal Resources, State Water Resources Control Board, and the Central Valley Regional Water Quality Control Board have reviewed the information submitted by California Resources Corporation (CRC, Formerly Occidental) of Elk Hills, Tulare Aquifer Exemption Document, Elk Hills Field (Exemption Document), dated September 14, 2014.

The CRC Exemption Document proposes an aquifer exemption for the entire saturated upper Tulare zone and both the unsaturated and saturated lower Tulare zone (below the Amnicola Claystone) within an area of approximately 59 square miles (see Attachment 1). Based on the information provided thus far, the State of California is moving forward with an Aquifer Exemption Application to the U.S. EPA only for the following areas: Section 32R and 33R, T30S, R23E, and Section 1B, 2B, 3B, 4B, 10B, 11B, 12B, and 13B, T31S, R23E, of the Elk Hills Oilfield (see Attachment 2).

The information submitted by CRC does not provide a sufficient technical demonstration that the injected fluids will remain in the other proposed exempted portions of the Elk Hills Oilfield. If CRC would like to continue to pursue aquifer exemptions for other portions of the Elk Hills Oilfield, it will need to demonstrate conclusively that injected fluids will remain in the proposed exempted areas. In order for CRC to make a sufficient demonstration, geophysical tests, hydrogeologic tests, geologic borings, and laboratory analyses are recommended to show that the Amnicola Claystone is a continuous, impermeable layer throughout both the proposed exempted areas and adjacent areas that may have current or future beneficial uses of water. For example, the competence and lateral extent of the Amnicola Claystone could be demonstrated by continuous core sampling and hydraulic conductivity testing, and installing a sufficient number of multi-depth wells completed above and below the Amnicola Claystone. These borings and monitoring wells could also utilize downhole geophysical (e.g. electrical logs) and hydrogeologic tests (e.g. aquifer testing). In addition, water samples could be collected above and below the Amnicola Claystone and tested for groundwater characteristics (e.g. cations and anions), general water chemistry analyses, and age dating.

If CRC does not elect to continue to pursue an aquifer exemption for the remaining portions of

the Elk Hills Oilfield, or if the additional collected information does not conclusively demonstrate that the waste will remain in the proposed exempted areas, then alternative methods of disposal will need to be explored.

Sincerely,

Jonathan Bishop
Chief Deputy Director
State Water Resources Control Board

Supervisor
Department of Conservation
Division of Oil, Gas & Geothermal Resources

Steven R. Bohlen, State Oil & Gas

Attachments (3)

cc: [Via email]

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Central Valley Regional Water Quality Control Board
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Rob Habel, Technical Program Manager
Department of Conservation
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